

Year In Review—NOx & OBD Effects Upon the WIVIP in 2001

NOX and OBDII

There were two new elements added to the Wisconsin Vehicle Inspection Program in 2001 which had an impact upon the repair industry.

The first, was the inclusion of NOx in the pass/fail criteria for IM240 tests. While NOx had been measured during the emission test since 1995, it had not been part of the result criteria. NOx was included because nitrogen oxides, like hydrocarbons, are precursors to the formation of ozone. They also contribute to the formation of acid rain.

As a result of the NOx testing, the program saw an increase in the number of vehicles failing the inspection. The NOx only failure rate during 2001 averaged 11.4% for all vehicles.

NOx Training Initiated

Due to the higher failure rate for NOx, training sessions were developed by Steve Kukawka, in conjunction with the Waukesha County Technical College and the Wisconsin Vehicle Inspection Program. These free evening seminars were well attended, with over 450 repair technicians attending one of the 26 total seminars.

During these NOx training seminars, there was hands-on training and lively discussions on how to approach diagnosing and repairing a vehicle failing for NOx. The result of these sessions should help the participants expediently diagnose and repair NOx failures.

OBD Testing

The second change to the program occurred on July 17th, when the "OBDII test," was adopted for newer vehicles. The OBDII check for 1996 and newer vehicles replaced the tailpipe emission test. This more efficient inspection for newer vehicles identifies emission problems before they effect drivability and reduce the test time. This benefits all motorists with an overall reduction in waiting times at the stations.

The OBD test consists of three inspections. The first determines if the Multifunction Indicator Light (MIL) is operating correctly during a Key On Engine Off check. The next inspection is to check the vehicles diagnostic link connector to see if it has been tampered. Lastly, communications with the vehicle's OBD system is established to see if there are any conditions which commanded on the vehicle's MIL light. The failure rate for OBDII tests is approximately 2.5%.

Technical Assistance Centers Active In Outreach Efforts

Whether it is a group of automotive students from area secondary and post secondary schools or southeastern Wisconsin auto technicians, all are welcome for tours and seminars at the two Technical Assistance Centers. In the past six months, it is estimated that over 750 people attended one of the various seminars or tours. Topics of discussion ranged from the NOx Diagnostic and Repair Strategies, OBDII issues, and general informational seminars about the vehicle inspection program. If you are aware of a group or individuals interested in attending an upcoming seminar, you may call either Technical Assistance Center.

Technical Assistance Center—North
7936 W. Clinton Avenue, Milwaukee 414-358-3905

Technical Assistance Center—South
561 W. College Avenue, Oak Creek 414-768-9135



The Wisconsin Emission Repair Facility Report – The Blue Book

Effective repairs are the key to achieving program goals. The state is required to take steps to ensure that the repair industry has the capability to repair the vehicles that fail the test. Technical assistance, repair technician training and The Blue Book are methods we have available to improve repair effectiveness.

What's it for?

Consumers: The report can be used to assist in the selection of a repair facility to fix vehicles that fail the test. The “score” of a shop is just one tool that a consumer might choose to use before making an appointment for service.

Repair Facilities: The report provides periodic feedback about your success in repairing failed vehicles. The hope is that shop owners would try to achieve a high score so that customers might choose their facility over one with a lower score. The score might also be a way to assess the need for more emission repair training.

The Report is not

- A list of “certified” repair facilities
- A recommendation from the program

How are the scores computed?

- The customer presents the Vehicle Inspection Report (VIR) from a failing vehicle to the shop.
- The repair technician diagnoses the vehicle and fills out the back of the VIR.
- When the vehicle returns to the test station for a retest, the inspector enters the repair facility phone number and cost of repairs.
- The program’s computer system calculates the shop’s success rate based on the repair information and the result on the retest.

It sounds pretty simple, but there are some important steps to remember about the process.

- **The score is based on the retests after first repair.** **A failing vehicle that** is repaired numerous times at different facilities would provide inputs for scoring the different facilities.
- Marking the “**Recommended But Not Performed**” **box for any item in the Repair Data Section** on the back of the VIR means that the result on the **test will not be used to compute the score** – even if the vehicle passes. While this provides an element of protection for those cases where a customer refuses repairs, checking this box for every vehicle means that the computer won’t have data to compute a score, and customers won’t have that piece of information to help them make their choice.

What should you do?

- Be accurate in filling out the back of the VIR. Remember the purpose of the Repair Data Section is to indicate what you’ve done and what may still need to be done to get the vehicle to pass.
- Write legibly. This is especially true regarding your phone number since we use the phone number to credit your shop with the repair. Some shops use a stamp to make it easier for the inspectors at the test stations to enter the correct information.
- Keep copies of VIRs for your records. If data entry errors occur, this helps to track the cause and correct them.

Call if you have questions. We send out a post card with the repair data before the Blue Book is published. We allow about two weeks for comment about the information. You can call Joe Paulick, at 414-266-1095 or 1-800-242-7500 ext.1095. Envirotest’s Public Relations Manager, Sue Krueger, is also available to answer your questions. You can reach her at 414-358-3900 or 1-800-678-7277 ext. 117.

Emission Related Repairs For Waiver Consideration

The following list represents the current interpretation of those repairs that are emission related and those that are not. Vehicle manufacturers may use different terms for items that perform similar functions. Questions will still occur about the validity of using the cost for certain repairs toward waiver issuance. Please address these questions to one of the technicians at the Technical Assistance Centers.

Carburetor

Rebuilding
Carb kit
Base gasket
Intake manifold
Choke pull-offs
Choke thermostats
AC Idle compensators
Mixture control solenoid
ISC motor
IAC motor
EFE grids heated
EFE vac actuator
EFE valves

Ignition

Distributor
Cap
Rotor
Points
Condenser
Plugs
Wires
Pick up coil
Coil or Coil pack
Weather head
Connectors
Ignition module

Computer System

Reprogram PCM (flash)
PROM (calibration chip)
Knock sensor
Misc. solenoids (too numerous to list)

Misc.

Chemical decarbonization of engine with specialized equipment (i.e. Motorvac, Sea foam)

One time only

Manual removal of carbon deposits
Timing adjustment
Exhaust leak (before catalyst)
Misc. sensors (too numerous to list)

Throttlebody

Rebuilding
Throttle shaft bushings
Injector (s)
Throttle base gasket
Injector seals
Wiring harness

Port/Sequential fuel injection

Fuel rails
Injector insulators
Injector seals
Plenums
Fuel injection cleaning (done with specialized equipment)

Engine

Head work
Valve work
Intake manifold
Cam shaft
Lifters
Push rods
Rocker arms
Cam rollers/followers
Cam bearings
Rings
Pistons
Engine block prep
Exhaust manifold (only with oxygen sensor or air injection system)
Timing chain gears or belt

Feedback systems

Electronic Control Module (ECM)
Coolant temp sensor (CTS)
Throttle position sensor (TPS)
Mass air flow (MAF)
Manifold absolute pressure (MAP)
Oxygen sensor (O2)
Air charge temp (ACT)

Gaskets

Head
Intake manifold
EGR
Carb
Exhaust
Valve cover

Evaporative

Any part originally installed by the manufacturer for control of evaporative emissions

Vacuum

Any vacuum actuated device which would alter the air fuel mixture; some examples include: brake booster, vacuum collector, or storage bulb

Misc. Fuel

Fuel pressure regulator
Fuel filter
Fuel pump (note computer Controlled vehicles only)
Fuel tank sending unit (with electric fuel pump)
Fuel tank (all cars)

Emission equipment

Catalytic Converter(s) and all items listed under the 9 point inspection criteria provided the item was not identified as tampered during the waiver inspection

What Is An Acceptable Receipt?

When a motorist applies for a waiver, one of the steps to determine if the vehicle is eligible, is to review the repair receipts. Occasionally, a receipt does not meet the criteria and the motorist is asked to return to the repair facility to provide additional information on the repair receipt. We thought it might be helpful to review the “checklist” of what the waiver personnel at the inspection facility use to determine a valid receipt for waiver purposes.

Before granting a waiver, the investigator checks acceptable repair receipts to 1) identify the repairs as being emission related; 2) assure that the stated repairs have been performed, and 3) determine if possible warranty repairs have been included. Receipts are acceptable for emission repairs which have been performed within 180 days from the expiration date of registration for the vehicle failing the emission test, and anytime after the failed test. The emission repair costs are cumulative for the vehicle within the acceptable time period.

At a minimum, repair receipts must include the following:

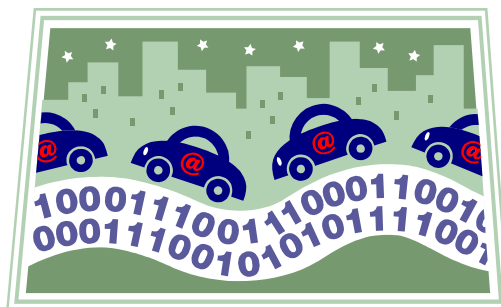
- Name, address and phone number of the repair facility
- Make, model, year and plate/VIN of the vehicle
- Itemized parts and labor
- Total cost of repairs and indication that repairs were paid at time receipt was issued
- Date of repairs

Any of the above items that are not met could be a reason that the motorist is asked to return to your repair facility to provide additional information regarding repairs. These requirements are part of ATCP 132 regulations which cover repair receipts also. You may call the Department of Agriculture and Consumer Protection if you have further questions regarding ATCP 132. You may speak to a representative or request a copy of the code, by calling the Milwaukee Regional Office at 414-266-1230.

Just a reminder. . .

There is a WEB site with program information for the Wisconsin Vehicle Inspection Program. It contains general information, such as station locations (and directions), fail/retest information for motorists, and explanations of the testing procedures. It also contains an electronic version of the Blue Book, Links to other program related WEB sites and Feedback forms to communicate with program representatives via e-mail. The site location is:

www.wivip.com



Most Common DTCs in OBDII Failures (2001)

Most 1996 and newer vehicles are now inspected utilizing the vehicles OBDII system. One of the Pass/Fail criteria for this inspection is determining whether the Malfunction Indicator Light (MIL) has been commanded on. When this occurs, diagnostic trouble codes are also retrieved and given to the customer as part of the Vehicle Inspection Report.



The following are the most common Diagnostic Trouble Codes retrieved from the OBDII test, when the MIL light has been commanded on.

DTC	Description	# Times
P0133	O2 Sensor Circuit Slow Response (Bank 1 Sensor 1)	91
P0300	Random/Multiple Cylinder Misfire Detected	55
P0401	Exhaust Gas Recirculation Flow Insufficient Detected	52
P0440	EVAP System	39
P1443	Evaporative Emission Control System Control Valve (Ford Lincoln Mercury)	38
P0420	TWC System Low Efficiency Bank 1	27
P0135	HO2S Heater Ckt. Bank 1 Sensor 1	21
P0153	HO2S Slow Response Bank 2 Sensor 1	20
P0141	HO2S Heater Ckt. Bank 1 Sensor 2	19
P0403	EGR Solenoid Control Circuit	18
P0302	Misfire detected in cylinder #2	17
P0171	Fuel Trim System Lean Bank 1	16
P0101	MAF System Performance	15
P0301	Misfire detected in cylinder #1	15

**Training
Classes**

As an ongoing service to the repair industry, The WIVIP Analyzer will publish a list of private and public training centers that offer courses in automotive repair technology.

The following is just a sampling of training courses available to you. The WIVIP Analyzer is not recommending any specific course and would encourage you to contact us at 414-266-1080 if you are aware of other training opportunities.



Gateway Technical College
Racine Campus
1001 South Main Street
262/619-6492

Jim Frantz
Lakeshore Technical College
1290 North Avenue
Cleveland, WI 53015-9761
920/458-4183

Other Training

Tim Houghtaling
Automotive Seminars Inc.
800/450-0402

Wells Technical Services
Wells Manufacturing Corporation
920/929-6258
Technician Hotline (Free)
1-800-558-9770 Press 3

WISETECH PROVIDERS

Waukesha County Technical College
800 Main Street
Pewaukee, WI 53072
262/691-5465

James Eden, Chrm Auto Program
Milwaukee Area Technical College
5555 West Highland Road
Mequon, WI 53092
262/242-6500 ext. 364

**AUTOMOTIVE RELATED
WEB SITES**

WWW.CCAR-GREENLINK.ORG
WWW.I-ATN.COM
WWW.AUTO-TALK.COM
WWW.STS.SAE.ORG
WWW.ASTTRAINING.COM

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